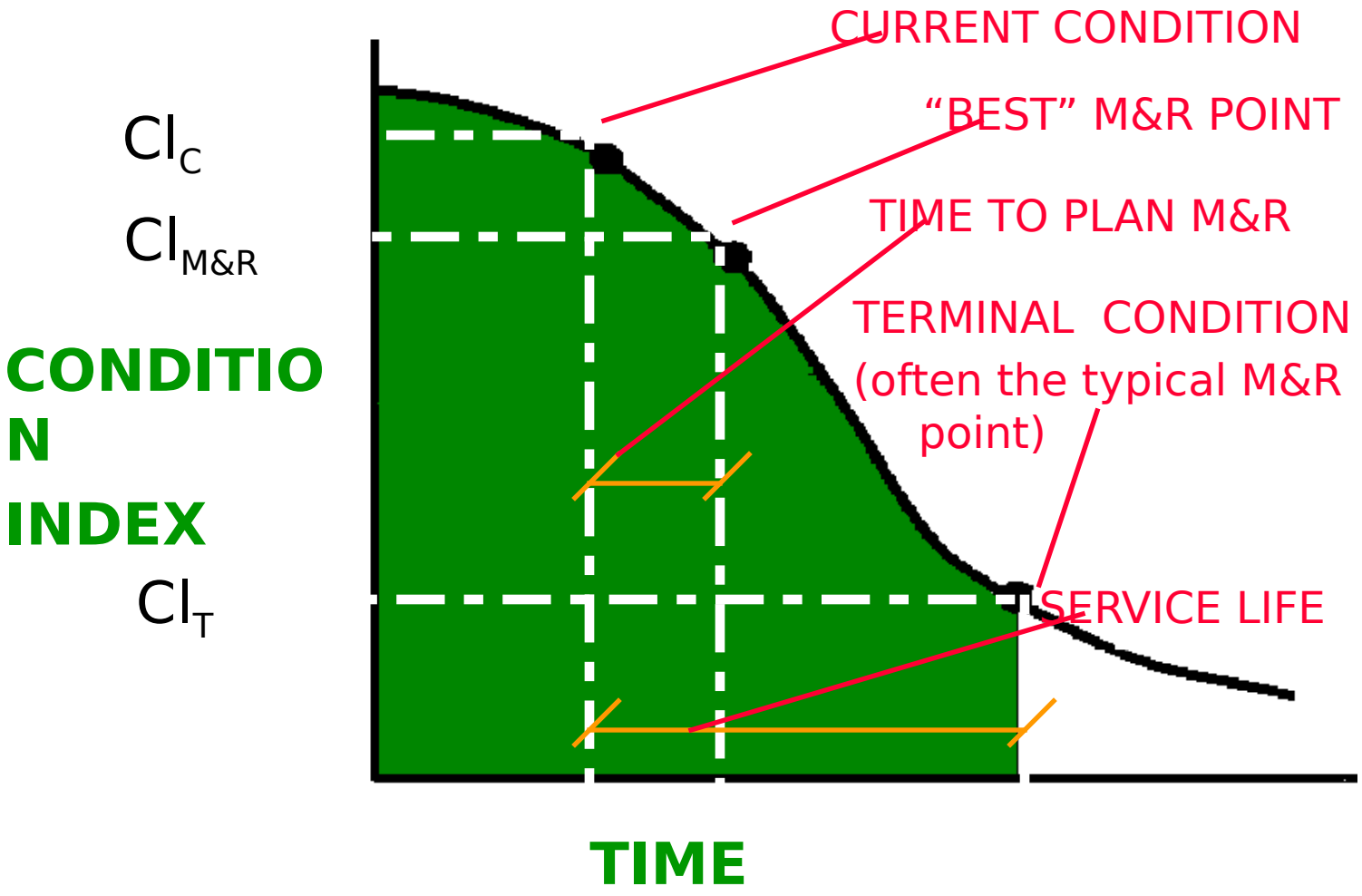
RAILER SMS

M&R Planning

M&R Planning Approach

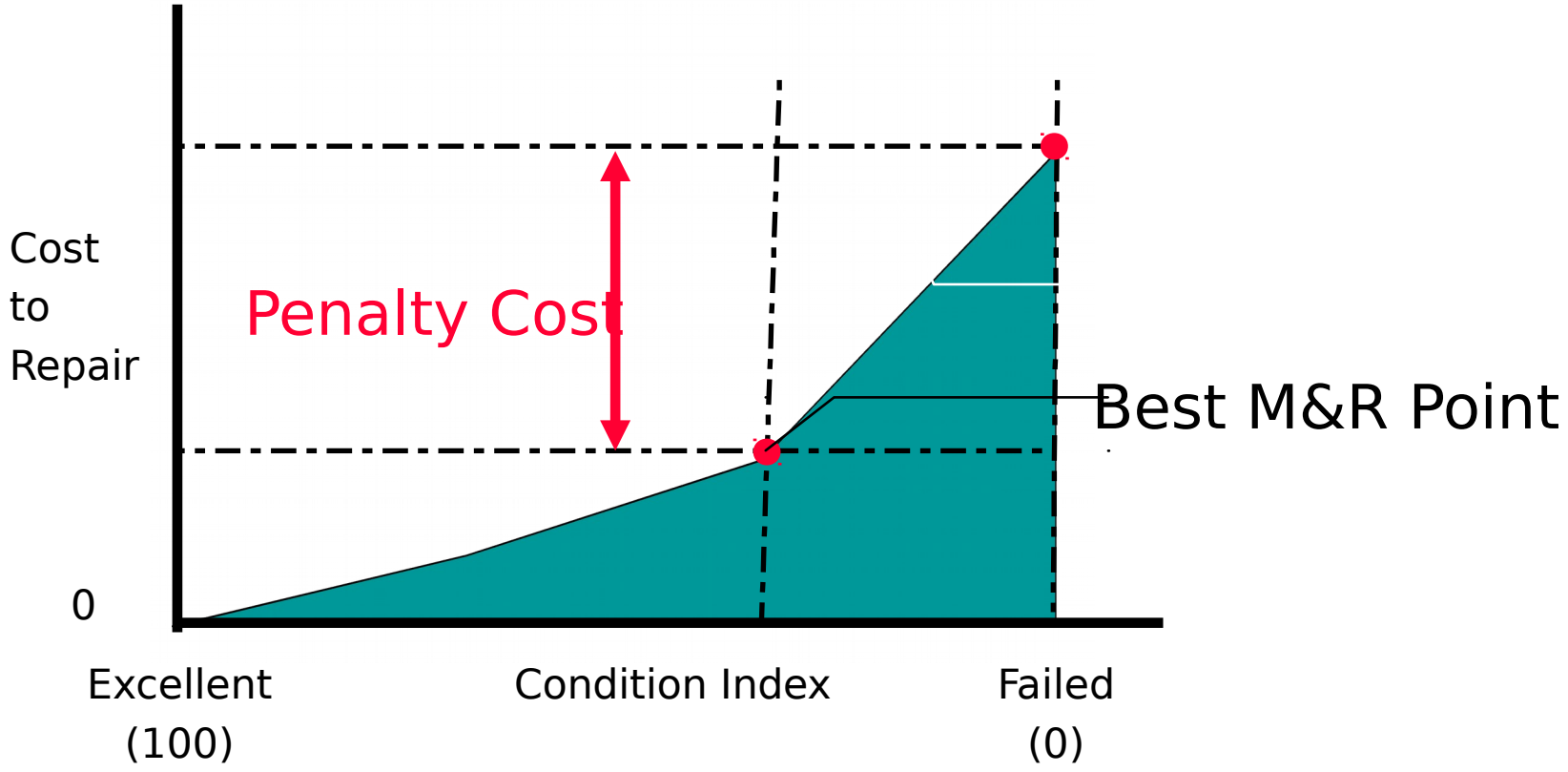
- Single or multi-year plans.
- Multiple plans can be created.
- Create and prioritize desired projects.
- Considers both localized and global (whole segment) M&R, including capital improvements.
- Preventive maintenance planning can be included.
- Uses user choice of work actions and M&R policies.
- RAILER will estimate M&R costs.
- Develop M&R strategies.

M&R Timing Concept

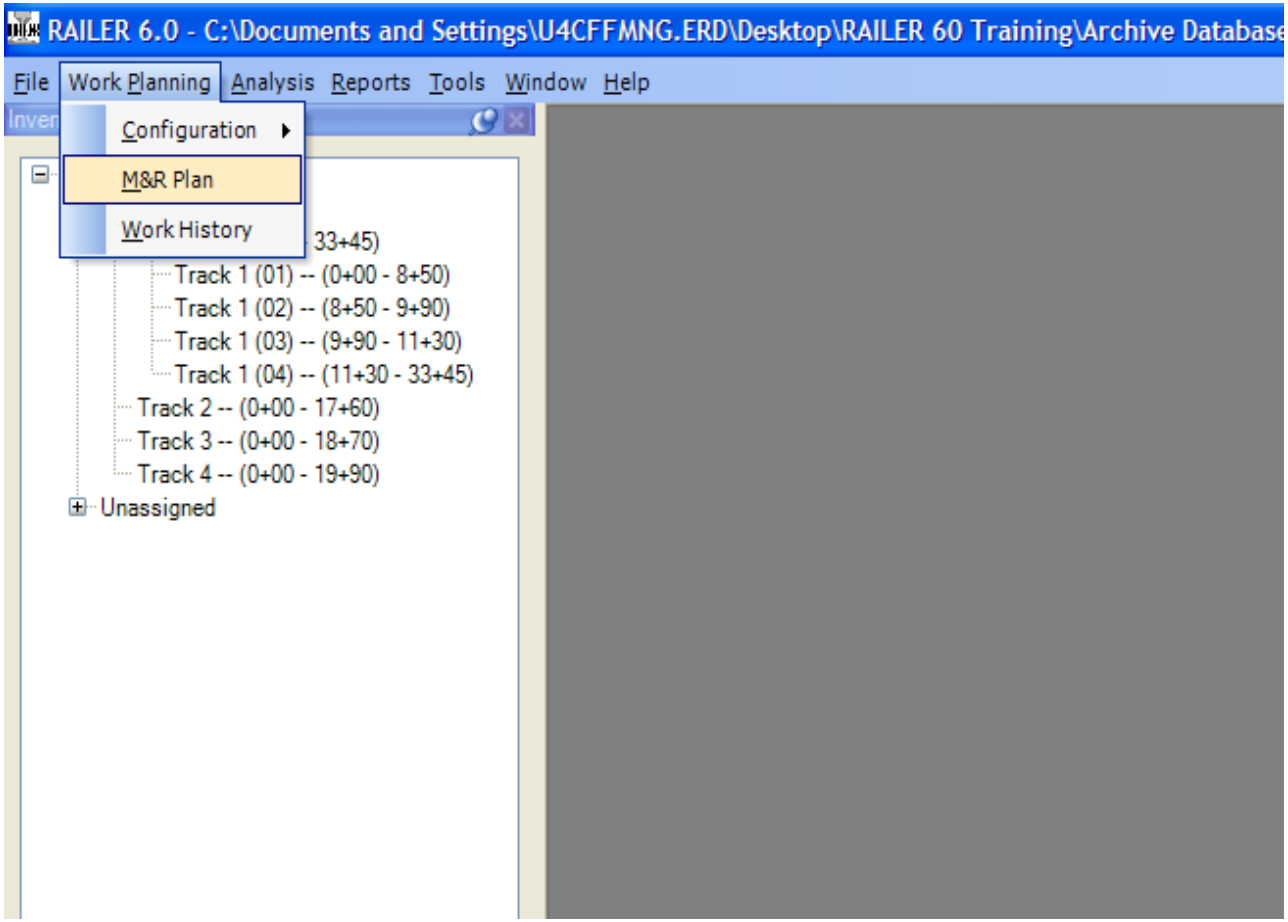


Penalty Cost Concept

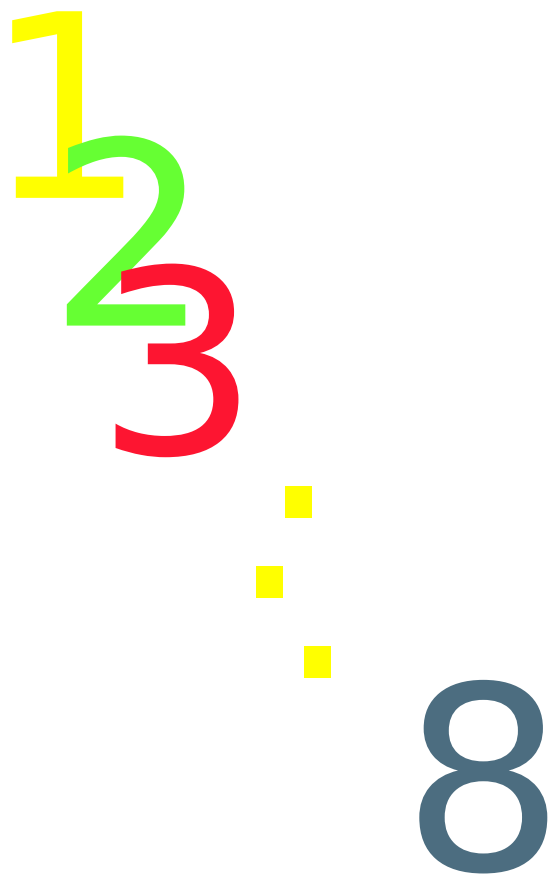
The Difference in Cost to Repair Between the "Best" M&R Point and the "Typical" M&R Point



RAILER Desktop

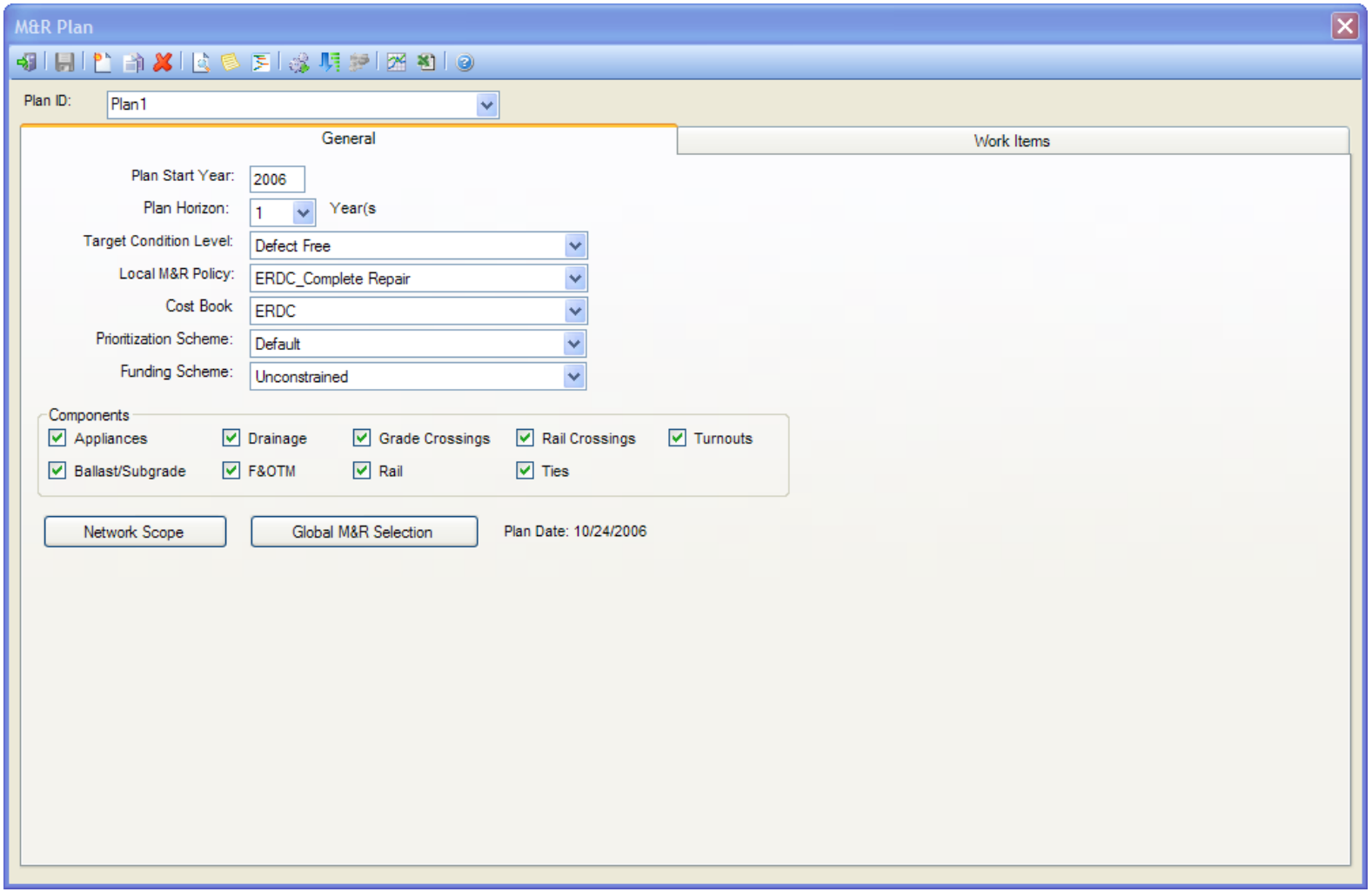


Eight Configuration Parameters



- 1. Start Year
- 2. Horizon
- 3. Target Condition Level
- 4. Local Policy
- 5. Cost Book
- 6. Prioritization Scheme
- 7. Funding Scheme
- 8. Scope of Plan

General Configuration Tab



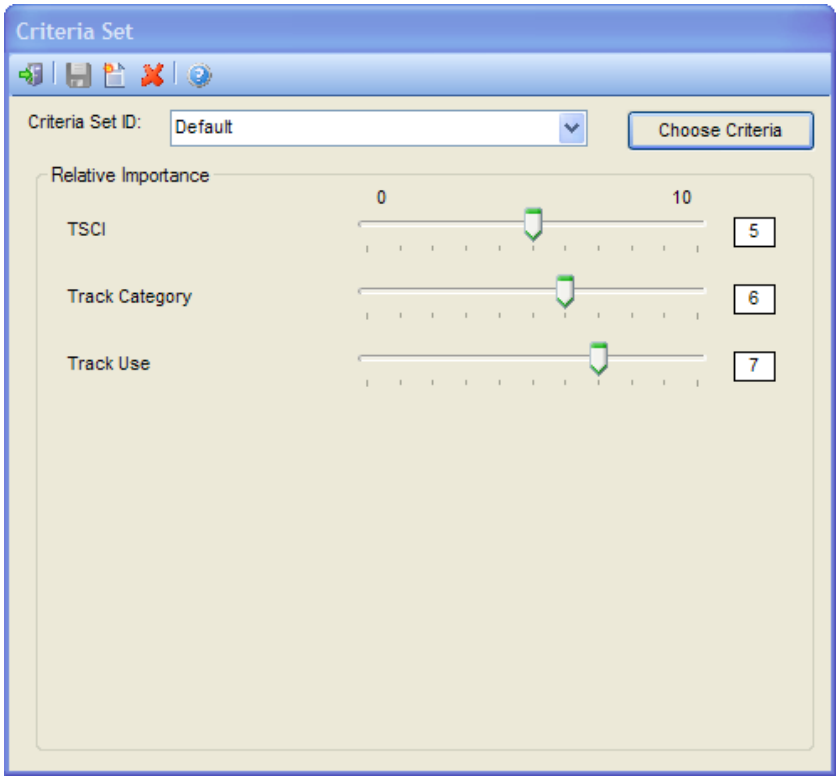
Target Condition Level

- Uses the active (primary) track standard as the basis for setting the trigger and default target condition levels.
- Track segments below the target condition level are candidates for inclusion into the plan.
- Defects that are at or below the trigger condition level as determined by the standard or the M&R policy will be included in the plan. Others will be ignored.

Prioritization

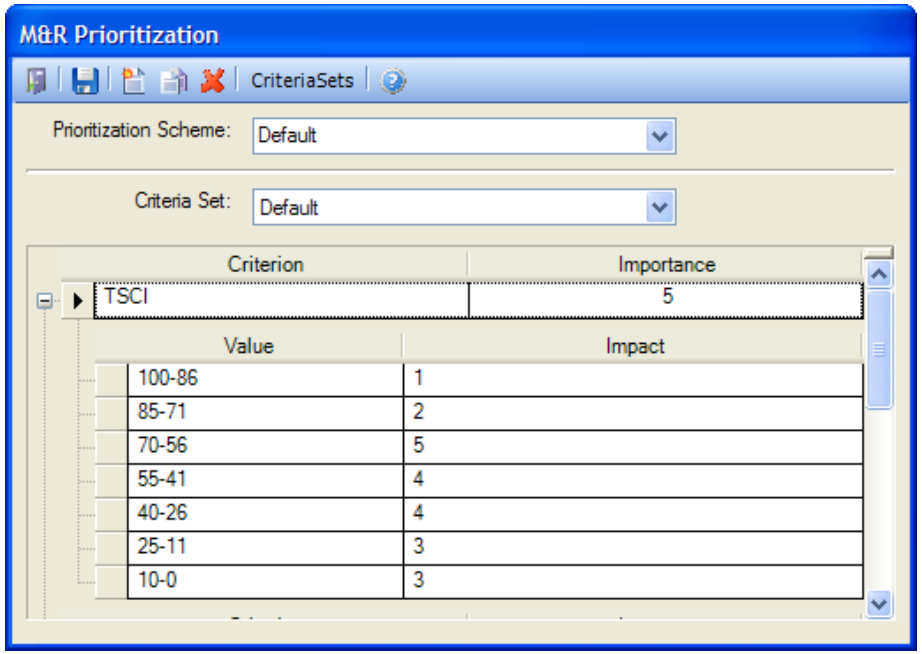
- Ensures essential work is focused on track segments and components giving greatest benefit when budget is limited.
- Based on user criteria and relative weightings.
- Prioritization Schemes are setup under work planning configuration menu.

Select Criteria/Weightings



- Criteria is selected from the “Choose Criteria” button.
- Criteria sets can be created and named for recall and use later.
- Selecting a criteria set will display a set of slide bars for setting relative importance.
- Relative importance is on a scale of 0 - 10 with 0 having no importance and 10 having maximum importance.

Impact Factors



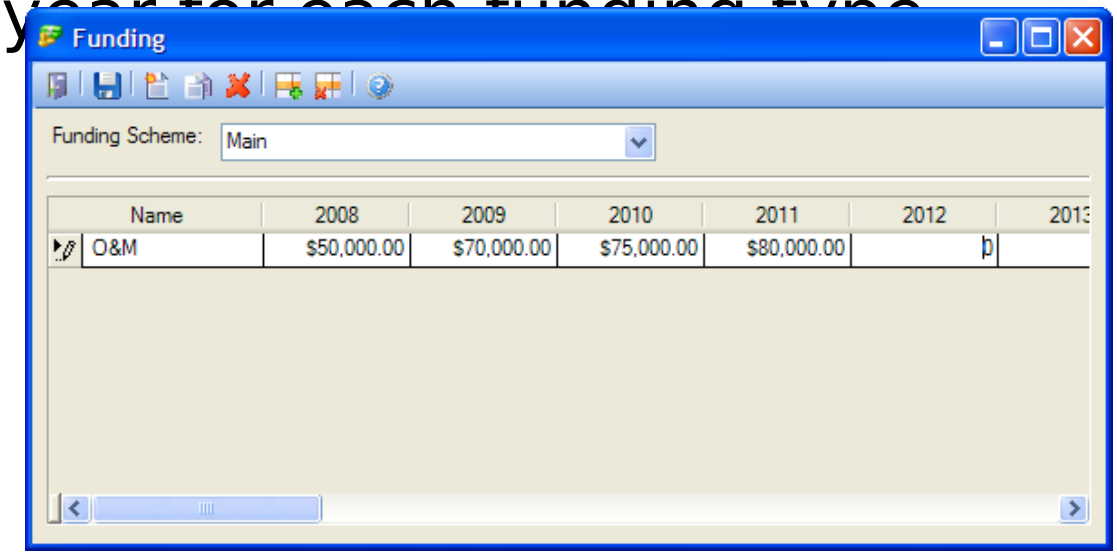
- Impact factors establish an importance factor for each criterion value or range.
- Importance factors are on a scale of 1 - 5 with 1 having little impact and 5 having great impact.
- Each of the criterion in the chosen criteria set has a set of impacts. These are displayed in the grid.

Funding Info

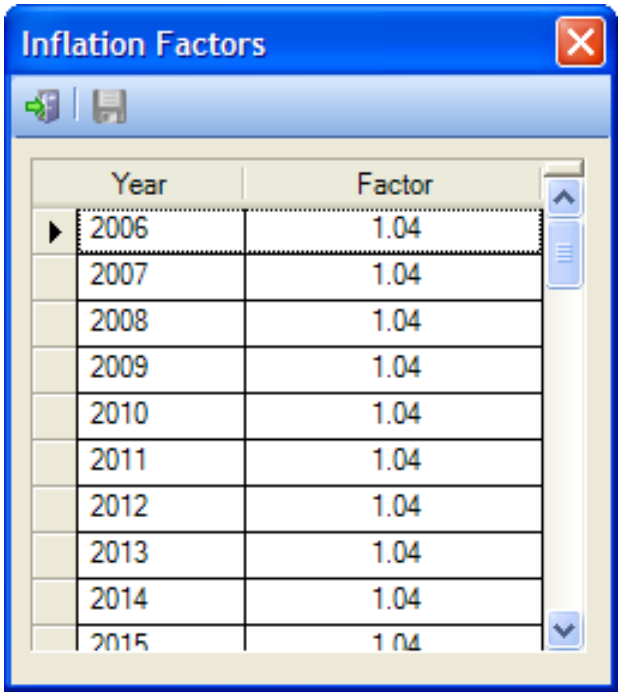
- Sets the expected funding to be applied to track M&R each year.
- To generate total backlog requirements, set funding to “Unconstrained”
- Funding schemes are created under M&R Planning -> Configuration -> Funding menu.

Funding Schemes

- A row in the grid is populated for each of the funding types declared when projects were created in Tab 4.
- User enters the expected budget amounts for each year for each funding type

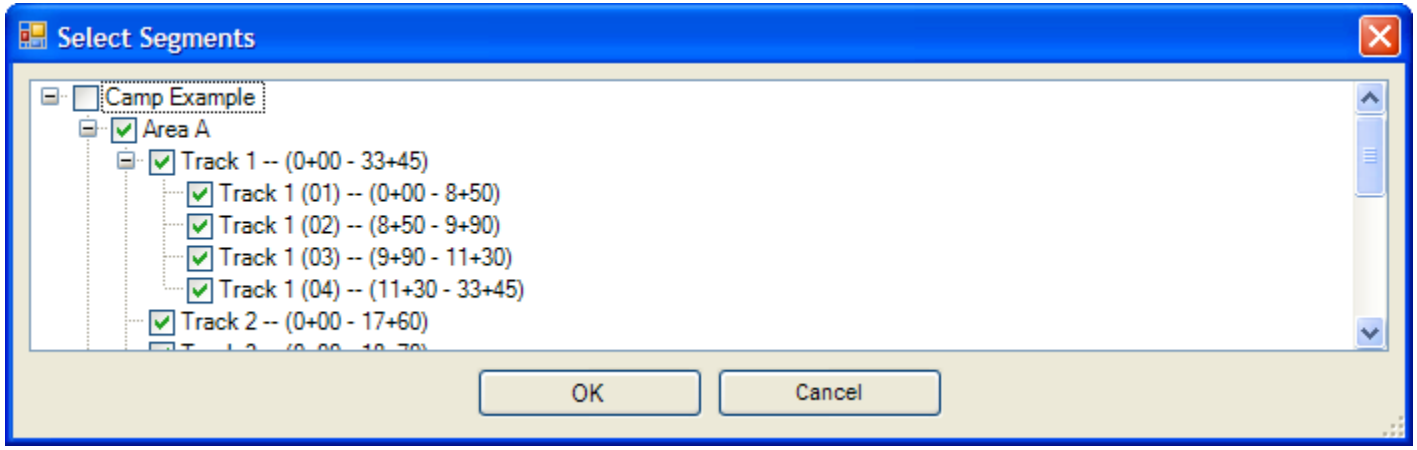


Inflation Factors



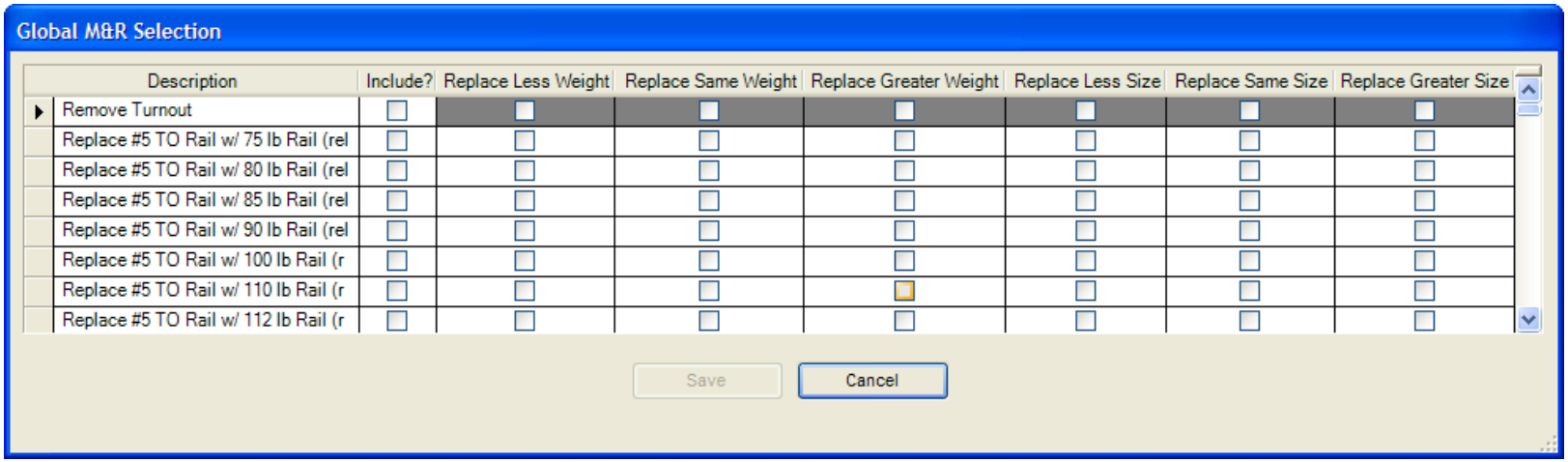
- Inflation factors are set by the user under Work Planning ->Configuration -> Inflation Factor menu
- Serve as cost multipliers for projects in the out years.

Selecting Tracks and Segments


Select Segments
Camp Example
Area A
Track 1 -- (0+00 - 33+45)
Track 1 (01) -- (0+00 - 8+50)
Track 1 (02) -- (8+50 - 9+90)
Track 1 (03) -- (9+90 - 11+30)
Track 1 (04) -- (11+30 - 33+45)
Track 2 -- (0+00 - 17+60)
OK
Cancel

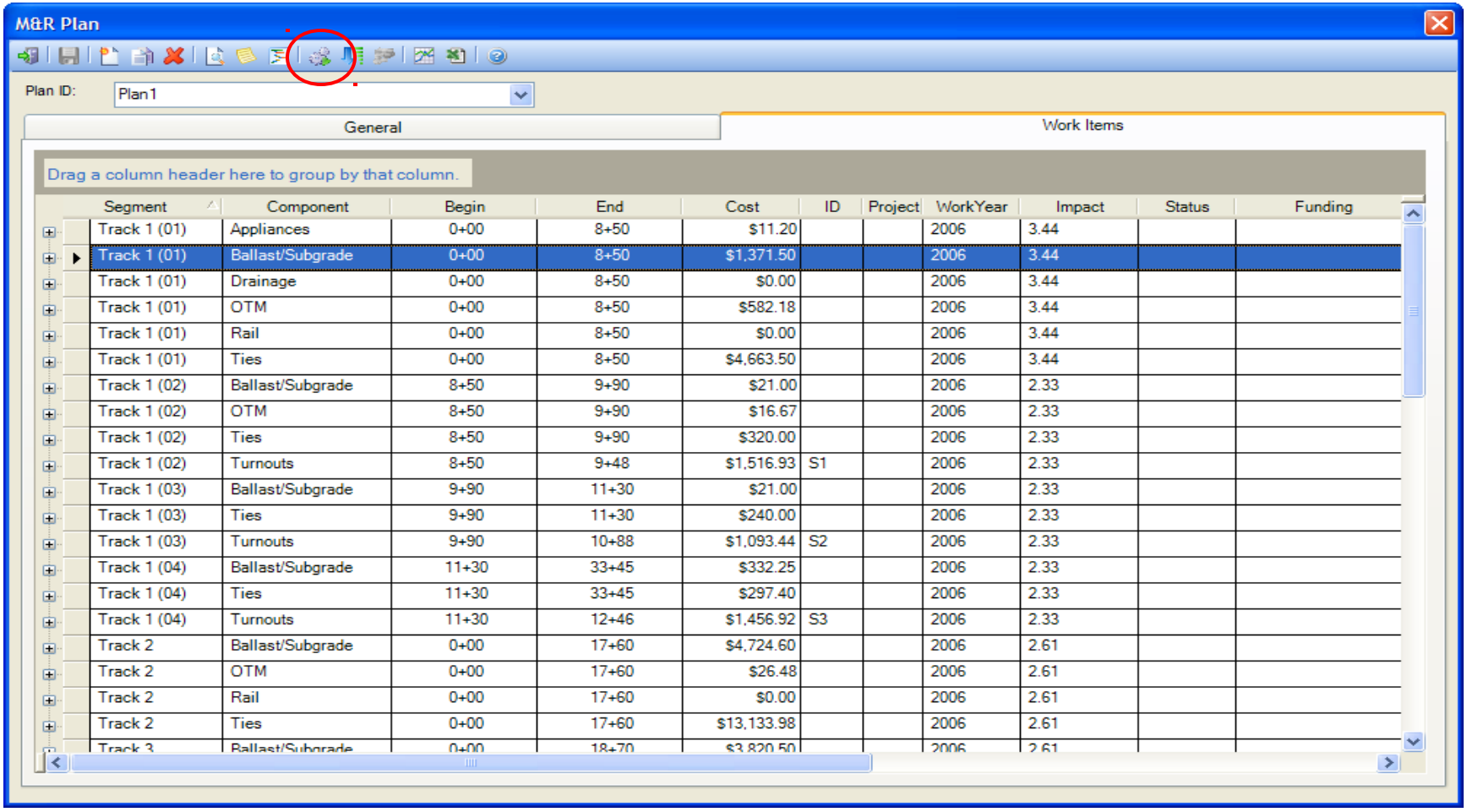
Selection Criteria allows you to choose just those tracks and segments meeting a specific plan need.

Global M&R Selection


Global M&R Selection
Description
Include?
Replace Less Weight
Replace Same Weight
Replace Greater Weight
Replace Less Size
Replace Same Size
Replace Greater Size
Remove Turnout
Replace #5 TO Rail w/ 75 lb Rail (rel
Replace #5 TO Rail w/ 80 lb Rail (rel
Replace #5 TO Rail w/ 85 lb Rail (rel
Replace #5 TO Rail w/ 90 lb Rail (rel
Replace #5 TO Rail w/ 100 lb Rail (r
Replace #5 TO Rail w/ 110 lb Rail (r
Replace #5 TO Rail w/ 112 lb Rail (r
Save
Cancel

nclude one or more applicable GWAs, as desired.

Generating Work Items



Segment	Component	Begin	End	Cost	ID	Project	WorkYear	Impact	Status	Funding
Track 1 (01)	Appliances	0+00	8+50	$11.20			2006	3.44		
Track 1 (01)	Ballast/Subgrade	0+00	8+50	$1,371.50			2006	3.44		
Track 1 (01)	Drainage	0+00	8+50	$0.00			2006	3.44		
Track 1 (01)	OTM	0+00	8+50	$582.18			2006	3.44		
Track 1 (01)	Rail	0+00	8+50	$0.00			2006	3.44		
Track 1 (01)	Ties	0+00	8+50	$4,663.50			2006	3.44		
Track 1 (02)	Ballast/Subgrade	8+50	9+90	$21.00			2006	2.33		
Track 1 (02)	OTM	8+50	9+90	$16.67			2006	2.33		
Track 1 (02)	Ties	8+50	9+90	$320.00			2006	2.33		
Track 1 (02)	Turnouts	8+50	9+48	$1,516.93	S1		2006	2.33		
Track 1 (03)	Ballast/Subgrade	9+90	11+30	$21.00			2006	2.33		
Track 1 (03)	Ties	9+90	11+30	$240.00			2006	2.33		
Track 1 (03)	Turnouts	9+90	10+88	$1,093.44	S2		2006	2.33		
Track 1 (04)	Ballast/Subgrade	11+30	33+45	$332.25			2006	2.33		
Track 1 (04)	Ties	11+30	33+45	$297.40			2006	2.33		
Track 1 (04)	Turnouts	11+30	12+46	$1,456.92	S3		2006	2.33		
Track 2	Ballast/Subgrade	0+00	17+60	$4,724.60			2006	2.61		
Track 2	OTM	0+00	17+60	$26.48			2006	2.61		
Track 2	Rail	0+00	17+60	$0.00			2006	2.61		
Track 2	Ties	0+00	17+60	$13,133.98			2006	2.61		
Track 3	Ballast/Subgrade	0+00	18+70	$3,820.50			2006	2.61		

M&R Cost Summary Report

RAILER®

M&R Cost Summary Report

2/5/2008

Plan: Plan1 **MOA:** ERDC **Standard:** U.S. Army

Policy: ERDC_Complete Repair **Condition After Repairs:** Defect Free

Track ID	Segment ID	Condition Before Repair	Global Cost	Local Cost	Total Cost
Track 3	N/A	No Operation	$280.50	$15,703.50	$15,984.00
Track 2	N/A	5 MPH	$264.00	$17,885.06	$18,149.06
Track 4	N/A	No Operation	$298.50	$16,240.08	$16,538.58
Track 1	Track 1 (01)	10 MPH	$127.50	$6,628.38	$6,755.88
Track 1	Track 1 (02)	10 MPH	$21.00	$1,874.60	$1,895.60
Track 1	Track 1 (03)	Full Compliance	$21.00	$1,354.44	$1,375.44
Track 1	Track 1 (04)	No Operation	$332.25	$2,086.57	$2,418.82
			$1,344.75	$61,772.63	$63,117.38

Note: The policy or policies chosen may not result in the desired minimum condition levels.

M&R Spreadsheet Report

RAILER®

M&R Spreadsheet Report

2/5/2008

Plan: Plan1 **MOA:** ERDC **Standard:** U.S. Army

Policy: ERDC_Complete Repair **Condition After Repairs:** Defect Free

Track ID / Segment ID	Ties	Rail	F&OTM	Ballast	Drainage	Turnouts	Appliances	Grade Xings	Rail Xings	Segment Total
Track 3	$434.80	$0.00	$2.99	$282.50	$0.00	$0.00	$0.00	$0.00	$0.00	$720.29
N/A										
Track 2	$846.98	$0.00	$26.48	$275.75	$0.00	$0.00	$0.00	$0.00	$0.00	$1,149.21
N/A										
Track 4	$778.29	$0.00	$261.33	$303.86	$0.00	$0.00	$0.00	$0.00	$0.00	$1,343.48
N/A										
Track 1	$503.50	$0.00	$119.19	$137.62	$0.00	$0.00	$11.20	$0.00	$0.00	$771.51
Track 1 (01)										
Track 1	$160.00	$0.00	$16.67	$21.00	$0.00	$1,054.74	$0.00	$0.00	$0.00	$1,252.41
Track 1 (02)										
Track 1	$80.00	$0.00	$0.00	$21.00	$0.00	$390.70	$0.00	$0.00	$0.00	$491.70
Track 1 (03)										
Track 1	$217.40	$0.00	$0.00	$332.25	$0.00	$820.03	$0.00	$0.00	$0.00	$1,369.68
Track 1 (04)										
Totals:	**$3,020.97**	**$0.00**	**$426.66**	**$1,373.98**	**$0.00**	**$2,265.47**	**$11.20**	**$0.00**	**$0.00**	**$7,098.28**

M&R Details Report

RAILER

M&R Details Report

2/5/2008

Plan:	Plan1	**MOA:**	ERDC	**Standard:**	U.S. Army
Policy:	ERDC_Complete Repair			**Target Condition After Repairs:**	Defect Free
Track:	Track 1			**Actual Condition After Repairs:**	Defect Free
Segment:	Track 1 (01)				

Global Work Actions

Component / ID:	Ballast/Sg		
Work Action:	Spray Vegetation		
Work Unit:	TF		
Quantity:	850		
		Cost:	$127.50

Condition Level: 10 MPH

Component / ID:	Ties		
Defect Type:	Isolated Defective Tie Cluster (3 Ties)		
Work Action:	Install/Replace Three Ties (7"x9"x8.5')		
Work Unit:	EA		
Quantity:	1		
		Cost:	$206.10
Component / ID:	Appliances		
Defect Type:	Derail, Not Readily Visible		
Work Action:	Paint Derail		
Work Unit:	EA		
Quantity:	1		
		Cost:	$11.20

Key Points to Remember

- An M&R plan can be created based on the desired scope of components and track segments.
- Multiple plans can be created.
- Plan duration can span multiple years.
- Plans can account for different project funding types.
- Once a plan is created, it can be altered, as desired, by editing the information on the appropriate tab.
- Refer to RAILER “Help” for a discussion on quantity adjustments.

Key Points to Remember (con't)

- Prioritizing components/segments is a means for creating logical projects.
- Prioritization is based on various criteria of the user's choosing.
- Project costs, priority, and plan year can all be overridden by the user.
- Out year project costs are inflated.

Key Points to Remember (con't)

- To determine the M&R backlog and budget needs, set the budget as "unconstrained."
- Backlogs and budget needs are a function of condition triggers and targets.

Questions?